

REMARKS

This responds to the Office Action mailed on October 30, 2008. Claim 18 is amended, no claims are canceled, and no claims are added in this communication. As a result, claims 1, 3 and 5-29 are now pending in this Application. It is respectfully noted that amendment of claim 18 has been made to expedite prosecution, and not for reasons related to patentability.

§101 Rejection of the Claims

Claims 18-25 were rejected under 35 U.S.C. § 101 as not falling within one of the four statutory categories of invention. This rejection is respectfully traversed.

As recently determined by the Court of Appeals for the Federal Circuit (CAFC), claims to methods do not need to explicitly recite a physical transformation nor a concrete or tangible result¹. Rather, the subject matter patentability of method claims is determined by the Bilski machine-or-transformation test. "The machine-or-transformation test is a two-branched inquiry; an applicant may show that a process claim satisfies §101 either by showing that his claim is tied to a particular machine, or by showing that his claim transforms an article." *Bilski* citing *Benson*, 409 U.S. at 70.

Thus, to be patentable, it is enough that the claimed invention is tied to a particular machine, or transforms an article to a different state or thing. In particular, the method of claim 18, as amended, recites "shifting a digital baseband signal upward along a frequency spectrum by a selected amount of frequency shift to provide by a first digital mixer a first elevated frequency digital baseband signal and by a second digital mixer", which ties the method to a particular machine. In addition, claim 18 also recites "a second elevated frequency digital baseband signal *derived* from a phase-shifted version of the digital baseband signal "; the digital baseband signal is transformed into an elevated frequency signal. Thus, the method of claim 18, and its dependent claims (19-25) is clearly tied to a particular machine (i.e., two digital mixers) and transforms the state of the digital baseband signal. As such, the claims presented are statutory in

¹ In *Re Bernard L. Bilski et al.*, 2007-1130, CAFC, Oct. 30, 2008; *State St. Bank and Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368 (Fed. CIR. 1999); *Ex Parte Lundgren*, F.3d, 2004, WL 3561262 (Fed. Cir. 2004); *Diamond v. Diehr*, 450 U.S. 175 (1981); *Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

accordance with 35 U.S.C. §101. Reconsideration and withdrawal of this rejection is therefore respectfully requested.

§103 Rejection of the Claims

Claims 1, 3 and 5-29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kumar (U.S. 2001/0024475 A1) in view of Ocenasek et al. (U.S. 2004/0032912, hereinafter “Ocenasek”). Claims 28 and 29 were also rejected under 35 U.S.C. § 103(a) as being unpatentable over Kumar in view of Ocenasek and in further view of Dent (U.S. 5,351,016). These rejections are respectfully traversed.

Independent claim 9:

Independent claim 9 recites (with emphasis added):

9. An apparatus, including:

a first digital mixer to receive a digital baseband signal and to shift the digital baseband signal upward along a frequency spectrum by a selected amount of frequency shift, to provide a first elevated frequency digital baseband signal;

a phase shifting module to receive the digital baseband signal and to provide a phase-shifted version of the digital baseband signal;

a second digital mixer to receive the phase-shifted version of the digital baseband signal and to shift the phase-shifted version of the digital baseband signal upward along the frequency spectrum by the selected amount of frequency shift, to provide a second elevated frequency digital baseband signal; and

a digital to analog converter to receive a selected one of the first elevated frequency digital baseband signal and the second elevated frequency digital baseband signal and to provide an analog signal to an image reject mixer,

wherein the selected amount of frequency shift is greater than about a bandwidth of the digital baseband signal.

First, the Applicant submits that neither Kumar nor Ocenasek teaches the feature of “**the selected amount of frequency shift is greater than about a bandwidth of the digital baseband signal**” as recited in claim 9.

The Applicant agrees with the Office’s admission on page 5, “Kumar does not teach wherein **the selected amount of frequency shift is greater than about a bandwidth of the digital baseband signal**”. (Emphasis added). However, on page 6, the Office asserts,

“Ocenasek et al teaches an up sampler device (see fig. 2 element 226) for increasing the frequency of a digital baseband signal (see fig. 2 elements 1ch or Qch) which are provided to a I/Q modulator (see fig. 2 element 238) to shift the increased frequency of the digital baseband. Note that by increasing the frequency of the digital baseband signal using the up sampler, the selected frequency at the output of the I/Q modulator is automatically greater than the baseband signal.”

It is noted that the assertion that Ocenasek teaches **“the selected frequency at the output of the I/Q modulator is automatically greater than the baseband signal”** does not justify the Office’s attempted conclusion that Ocenasek teaches the feature of **“the selected amount of frequency shift is greater than about a bandwidth of the digital baseband signal”** as recited in claim 9, because the asserted **“selected frequency at the output of the I/Q modulator”** is the frequency at the output of the I/Q modulator, rather than **“the selected amount of frequency shift” (upward along a frequency spectrum)** as claimed in claim 9. In conclusion, Ocenasek simply does not teach the feature of **“the selected amount of frequency shift is greater than about a bandwidth of the digital baseband signal”** as recited in claim 9.

For at least this reason, the Applicant submits that neither Kumar nor Ocenasek teaches the feature of **“the selected amount of frequency shift is greater than about a bandwidth of the digital baseband signal”** as recited in claim 9.

Second, the Applicant submits that neither Kumar nor Ocenasek teaches the feature of **“a first digital mixer to receive a digital baseband signal and to shift the digital baseband signal upward along a frequency spectrum by a selected amount of frequency shift, to provide a first elevated frequency digital baseband signal”** as claimed in claim 9.

The Office asserts that Kumar teaches the first and second digital mixers as elements 219 and 205 of FIG. 15, respectively. Similarly, the Office asserts that the phase shifting module is taught as element 205 in FIG. 15 of Kumar. If this is the case, then the “digital baseband signal” received by the phase shifting module is signal element 203. However, this signal element 203 is not the same as the signal received by the first digital mixer 219. Rather, the signal received by the first digital mixer 219 is signal element 214, which is a delayed version of the baseband signal 203, and not the baseband signal 203 itself. Thus, the Applicant submits that Kumar does not teach the feature of **“a first digital mixer to receive a digital baseband signal and to shift**

the digital baseband signal upward along a frequency spectrum by a selected amount of frequency shift, to provide a first elevated frequency digital baseband signal” as claimed in claim 9. Ocenasek does not remedy this defect of Kumar.

In summary, no combination of the cited references (Kumar and Ocenasek) is capable of providing the claimed elements **“a first digital mixer to receive a digital baseband signal and to shift the digital baseband signal upward along a frequency spectrum by a selected amount of frequency shift, to provide a first elevated frequency digital baseband signal”** and **“the selected amount of frequency shift is greater than about a bandwidth of the digital baseband signal”** as claimed in claim 9. Thus, the Applicant respectfully submits that independent claim 9 is nonobvious over the cited references.

Independent claims 1, 12, 18 and 26:

The above arguments presented with respect to independent claim 9 also apply to independent claims 1, 12, 18 and 26, which have similar features to independent claim 9.

All dependent claims are also nonobvious, since any claim depending from a nonobvious independent claim is also nonobvious. *See* M.P.E.P. § 2143.03.

Reconsideration and withdrawal of the rejections under § 103(a) are therefore respectfully requested.

CONCLUSION

The Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone the undersigned at (210) 308-5677 to facilitate prosecution of this Application. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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